

WHAT IS CLAIMED IS

1. A method for producing a hyperplastic variant plant, comprising functionally inactivating expression of a plant D-like cyclin inhibitor gene in a plant wherein a hyperplastic variant is produced, the hyperplasticity being relative to a wild-type plant.
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2. The method of claim 1, wherein the plant D-like cyclin inhibitor gene is a *BRO* gene.
3. The method of claim 1, wherein the genome of said hyperplastic variant plant comprises a structurally disrupted plant D-like cyclin inhibitor gene.
- 10 4. The method of claim 1, wherein an antisense or inverted repeat polynucleotide functionally inactivate expression of the plant D-like cyclin inhibitor gene in the plant.
- 15 5. The method of claim 1, wherein the functionally inactivated plant D-like cyclin inhibitor gene is structurally disrupted by homologous recombination with a targeting construct.
6. A polynucleotide targeting construct comprising a sequence that is homologous to a sequence present in a plant D-like cyclin inhibitor gene and which, when integrated at the corresponding plant D-like cyclin inhibitor gene locus, functionally inactivates plant D-like cyclin inhibitor protein expression.
- 20 7. A polynucleotide targeting construct of claim 6, wherein said plant D-like cyclin inhibitor gene is a *BRO* gene.
8. A hyperplastic plant having a functionally inactivated plant D-like cyclin inhibitor gene, the hyperplasticity being relative to a wild-type plant.
- 25 9. The hypertrophic plant of claim 8, wherein the plant D-like cyclin inhibitor gene is a *BRO* gene.

10. A method for increasing the growth rate of a plant, comprising functionally inactivating expression of a plant D-like cyclin inhibitor gene in a plant wherein the growth rate of the plant is increased relative to a wild-type plant of the same species having the functional plant D-like cyclin inhibitor gene.

5 11. The method of claim 10, wherein the expression of the plant D-like cyclin inhibitor is functionally inactivated by an antisense or an inverted repeat polynucleotide.

12. A method for increasing the proportion of dividing cells in a plant cell population comprising:

10 exposing said population of cells to an inhibitor of a plant D-like cyclin inhibitor in an amount sufficient to increase the proportion of dividing cells to non-dividing cells relative to said proportion in a population of untreated cells.

13. The method according to claim 12, wherein the cell population comprises protoplasts, seeds, root cells, meristem cells or leaf cells.

15 14. An inhibitor of a plant D-like cyclin inhibitor which comprises an oligonucleotide that specifically binds to DNA encoding BRO4 or an RNA transcribed therefrom and inhibits expression of BRO4 protein.

15. A nucleotide sequence which encodes the plant D-like protein designated BRO4 as depicted in SEQ ID NO: 8.

20 16. The nucleotide sequence of claim 15, wherein the nucleotide sequence is that depicted in SEQ ID NO: 7.